STS-132 Post-Mission Summary

NWS Spaceflight Meteorology Group

Space Shuttle *Atlantis* lifted off from Kennedy Space Center (KSC) launch pad 39A on May 14, 2010 at 1:20 PM CDT (18:20 UTC). Launch was on time. A ridge of high pressure aloft and at the surface provided for benign weather at the launch and possible Return-To-Launch-Site (RTLS) abort times. Abort landing weather at the Transoceanic Abort Landing (TAL) sites was a bit trickier. An upper level trough was moving through Spain during the hours prior to launch. A surface low pressure area formed between Zaragoza, Spain and Istres, France during the day. The result was breezy conditions for both Moron and Zaragoza, Spain. However, by launch time, winds decreased to just below weather flight rule limits. Clouds moved into the Moron vicinity from the north late in the launch countdown. Cloud ceilings were reported between 4500 and 7000 feet. The astronaut weather reconnaisance pilot at Moron reported no problems with the reported cloud ceiling. At Istres showers and thunderstorms remained well outside of the 20 NM watch area. Weather observations for launch appear in Table 1. Prior to launch, the NASA Flight Director in Houston selected Zaragoza as the prime TAL site, in case it was needed for a launch abort contingency.

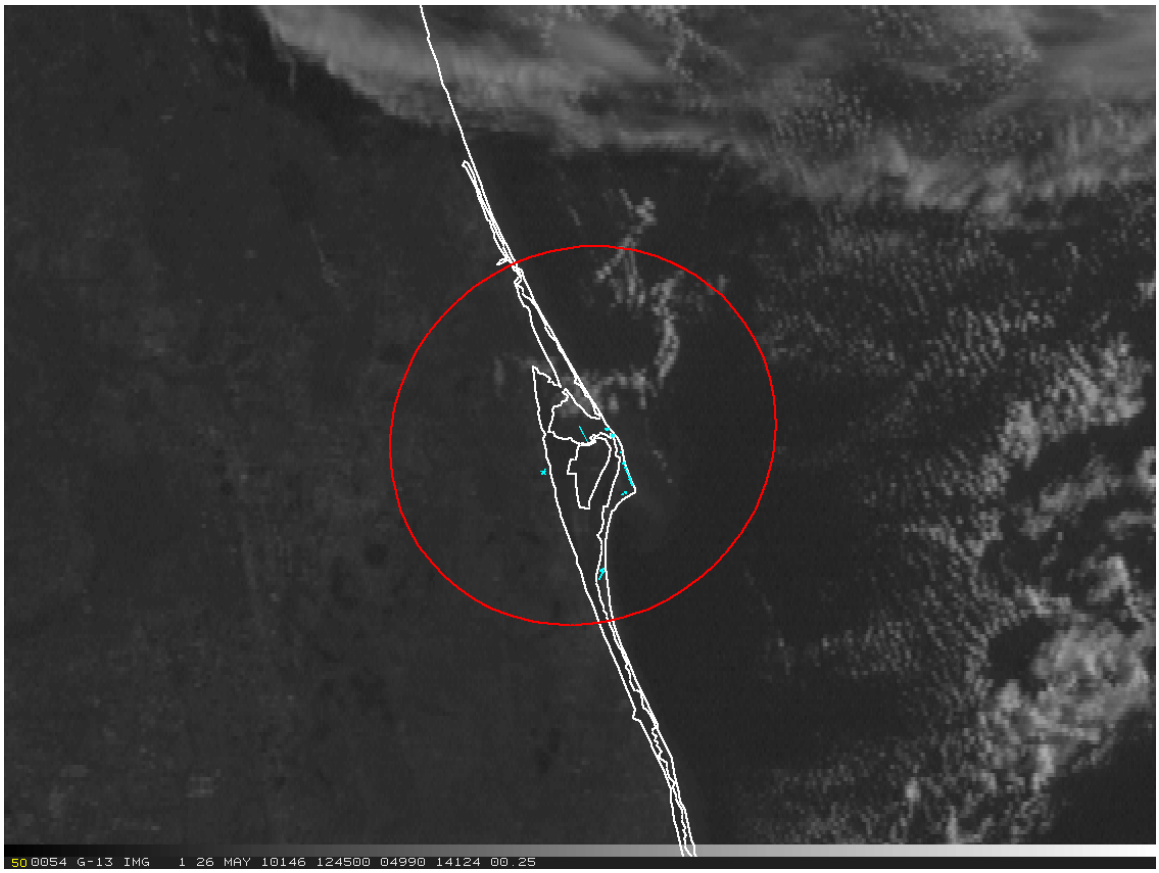

Figure 1. GOES East visible satellite image approximately at End of Mission (1245 UTC). Small cyan line in center of image is the NASA Shuttle Landing Facility runway.

STS-132 Post-Mission Summary
NWS Spaceflight Meteorology Group

Atlantis landed on time at the Kennedy Space Center NASA Shuttle Landing Facility at 1248 UTC on May 26, 2010. The forecast challenge for landing was showers circulating around a low pressure area off of the Carolina coasts. During the landing count, these showers moved within 30 NM offshore of KSC. However, by deorbit burn decision time, these showers had moved beyond the 30NM radius from KSC. A few showers were well offshore (beyond 30NM from KSC) at landing time. Also, a small group of showers moving south southeastward during the entry countdown dissipated well before getting within 30 NM of KSC. At landing time only a few clouds were visible, as seen in Figure 1. The landing observation appears in Table 1.

The mission lead forecaster for STS-132 was Tim Garner. Kurt Van Speybroeck was the TAL/Assistant lead forecaster. Paul Wahner was lead Techniques Development Unit meteorologist.

The next Space Shuttle mission, STS-133, is currently scheduled for September or October 2010.

Submitted by: Tim Garner, STS-132 Lead Meteorologist

Table 1. Launch, RTLS, TAL and EOM Landing Observations

Launch Observations (closest to launch time):

SITE		CLOUDS		VSBY	WX	WIND	TT/TD	ALSTG	DA	REMARKS
KSC 1820Z	FEW028		BKN300	10		12208P16	82/71	30.26	1460	
NOR 1820Z	SCT050			10		12009G14	82/45	29.97	6332	
EDW 1755Z	FEW060		FEW250	85		VRB03	73/30	29.99	3727	
ZZA 1820Z	FEW050	SCT180		7		33017P21	66/34	29.84	1707	
MRN 1820Z	BKN045			7		27011P17	66/43	30.08	751	16 kt xwind
FMI 1820Z	FEW042	FEW120	BKN200	7		33013P23	59/45	29.69	481	

RTLS 14/1845Z

SITE		CLOUDS		VSBY	WX	WIND	TT/TD	ALSTG	DA	REMARKS
KSC	FEW028		BKN300	10		09307P15	82/71	30.26	1460	RWY15 WND 09409P17

TAL 14/1855Z

SITE		CLOUDS		VSBY	WX	WIND	TT/TD	ALSTG	DA	REMARKS
ZZA		SCT100	SCT180	7		32016P20	57/32	29.86	1094	
MRN	BKN045			7		29012P15	64/43	30.09	744	Weather recon acft reported no clouds below 7000 ft
FMI	FEW042		BKN200	7		33014P18	57/45	29.69	349	

KSC EOM Landing Observation: 25/1248Z

SITE		CLOUDS		VSBY	WX	WIND	TT/TD	ALSTG	DA	
KSC	FEW029	FEW090		10		31508P11	79/72	29.91	1651	